

LSR, as illustrated in FIG. 3. Loopback arrow 12, in FIG. 3, illustrates a loopback procedure performed at LSR 1. Also, elements of the loopback LSR illustrated in FIG. 4 will be used in the description of FIG. 5. In step 70, LSR 1 receives a loopback packet from LER A on port 50 having incoming label 102 in the loopback packet header. The packet information for the loopback packet is forwarded to processing circuitry 65. In step 71, processing circuitry 65 determines that the packet is a loopback packet from packet header information for the loopback packet, and identifies itself as the loopback LSR for the received loopback packet traveling downstream on BTT 10. Techniques for identifying loopback packets, such as INMPs are described in co-pending U.S. Patent Application Serial No. 09/589,466, previously incorporated by reference. In step 72, processing circuitry 65 replaces incoming label 102 with incoming label 406 that corresponds to a packet received from BTT 10 traveling upstream on BTT 10. In step 73, processing circuitry 65 identifies the NHLFE associated with the replaced label 406. For example, processing circuitry 65 may index a table having NHLFEs and retrieve the NHLFE associated with replaced label 406. Processing circuitry 65 determines the next hop using the identified NHLFE (step 74), and the loopback packet is transmitted to LER A in step 75. In per-interface label space method is used (as opposed to per-platform label space), the loopback packet is label switched using the NHLFE associated with the interface corresponding to label 406 in FIG 3.

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FIG. 9 is a flow diagram for processing INMPs. FIG. 9 will be described in conjunction with MPLS network 40 as shown in FIG. 3 and using LER B as a loopback LSR. In step 500, LER A constructs a loopback INMP. In step 501, LER A transmits the loopback INMP downstream towards the loopback LSR, e.g., LER B. LSR 1 is the next hop on BTT 10 in the downstream direction, and LSR 1 receives the loopback INMP in step 502. In step 503, LSR 1 identifies the packet as an IMNP using a MPLS shim header for the INMP. The shim header and its use for differentiating between user packets and INMPs is described in U.S. Patent Application Serial No. 09/589,466, previously incorporated by reference. LSR 1 then determines whether the received INMP is a loopback INMP, for example, by reading a command in the